

UNITED STATES DISTRICT COURT  
EASTERN DISTRICT OF NEW YORK  
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UNITED STATES OF AMERICA,

- against -

10 Cr. 074 (S-4) (JFB)

LOUIS RUIZ,  
HERIBERTO MARTINEZ, et al.,

Defendants.

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**DEFENDANTS LOUIS RUIZ (TRIAL GROUP V)  
AND HERIBERTO MARTINEZ'S (TRIAL GROUP III)  
OBJECTION TO THE GOVERNMENT'S  
CELL SITE TECHNOLOGY EXPERT,  
AND, IN THE ALTERNATIVE,  
JOINT MOTION IN LIMINE FOR A DAUBERT HEARING  
AND MEMORANDUM OF LAW IN SUPPORT THEREOF**

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**DEFENDANTS' OBJECTION TO THE GOVERNMENT'S CELL SITE  
TECHNOLOGY EXPERT, AND, IN THE ALTERNATIVE, JOINT  
MOTION IN LIMINE FOR A DAUBERT HEARING**

**I. Preliminary Statement**

Defendants Louis Ruiz (Trial Group V) and Heriberto Martinez (Trial Group III) hereby jointly object in limine to the Government's "Cell Site Technology Expert", Eduardo Orellana. Defendants respectfully submit that the Government's notice of Mr. Orellana's testimony was insufficient and as such his testimony should be precluded.

To the extent that the Government is able to cure its deficient notice, in the alternative Defendants jointly move in limine for a hearing, pursuant to the standard articulated in Daubert v. Merrell Dow Pharmaceuticals, 509 U.S. 579 (1993), and its progeny, to determine the reliability and admissibility of the specific cell phone tower evidence and expert testimony that the Government intends to rely upon at the defendants' respective trials. Should Mr. Orellana's testimony prove to be unreliable, Defendants Ruiz and Martinez respectfully submit that such testimony should be precluded at each of their respective trials.

We note that we have spoken to counsel for all other remaining Trial Group III and V defendants (defendants Carlos Ortega, David Valle, Yanes Acosta-Yonis, and Franklin Villatoro), and all such defendants join in the instant applications.

## II. Background

The Government has served notice, pursuant to Fed.R.Crim.P. 16(a)(1)(G), of its intent to call Eduardo Orellana, as a “Cell Site Technology Expert”, in its case-in-chief at each of the defendants’ trials. See Gov’t letter, dated, October 5, 2012 (hereinafter, the “Government’s notice” or “Gov’t Notice”) (*ecf* #1034), at 1, 3. Pursuant to its requirements under Rule 16, the Government summarizes Mr. Orellana’s testimony as follows:

### Cell Site Technology Expert

Eduardo Orellana, a Communications Project Manager for Integrated Strategic Resources, LLC, will testify as a cell site technology expert. In sum and substance, the government anticipates that Mr. Orellana will testify about the engineering and operation of cell site technology, specifically, the design of cell sites and cell phone towers; how cellular telephones communicate with cell phone towers; and how cell site data can be used to determine the geographical location of a cellular phone. Mr. Orellana's curriculum vitae will be provided under separate cover.

(Gov’t Notice at 3.)

Based upon the Government’s notice it appears that at both trials the Government will attempt to elicit from its proffered expert that the employment of a particular cell phone tower by a cellular telephone establishes that the cellular telephone was in close proximity to the cell phone tower. More specifically, we expect that the Government will be seeking to admit evidence that a cellular phone,

ostensibly used by one or more of the defendants, placed phone calls on or about the times and dates of one or more of the offenses alleged in the Superseding Indictment, and that when these phone calls were placed the calls employed a cell tower or towers located in close proximity to the location of the charged conduct thereby allowing the Government's expert to offer his opinion regarding the defendants' locations at the time such conduct is alleged to have occurred.

What is not clear from the Government's notice, however, is to which counts Mr. Orellena's testimony will relate, to which defendants Mr. Orellena's testimony will relate (if not all defendants, since all defendants were served with the Government's notice), and most importantly, whether the Government intends to present testimony that is based upon cell tower data derived from a single tower, two towers, or three.<sup>1</sup> This final omission is essential because only data derived from three towers, through a process referred to as triangulation, carries with it any potential for reliability, whereas data derived from only one or two towers is dubious at best. See, generally, Aaron Blank, *The Limitations and Admissibility of Using Historical Cellular Site Data to Track the Location of a Cellular Phone*, XVIII Rich. J.L. & Tech. 3 (2011) <available at <http://http://jolt.richmond.edu/v18i1/article3.pdf>> (last accessed January 17, 2013).

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<sup>1</sup> We note that we spoke to the Government earlier today, January 17, 2013, and specifically asked which method of cell phone tracking was expected to be the subject of Mr. Orellena's testimony. The Government was unable to provide a definitive answer. As such, and because time is quickly dwindling before Trial Group III's trial is scheduled to begin, we submit this motion now to avoid future delays.

Indeed, as will be discussed below, even triangulation is open to evidentiary challenges, particularly since it is considerably less reliable than cell phone tracking based upon Global Positioning System (“GPS”) technology.

### **III. Methods of Tracking Cellular Telephones**

At the outset we note that there are three basic methods used to track cellular phones to which counsel are aware: (1) GPS technology; (2) capturing real-time cell site data; and (3) interpreting historical cell site data. See Clifford S. Fishman & Anne T. McKenna, Wiretapping and Eavesdropping: Surveillance in the Internet Age (hereinafter, “Fishman & McKenna”) § 29:35, 29:38 (2011). GPS is a system of satellites and ground receivers used to locate a receiver’s position. See, generally, Adam Koppel, *Warranting a Warrant: Fourth Amendment Concerns Raised by Law Enforcement’s Warrantless Use of GPS and Cellular Phone Tracking*, 64 MIAMI L. REV. 1061, 1063-66 (2010) <available at [http://lawreview.law.miami.edu/wp-content/uploads/2011/12/v64\\_i3\\_akoppel.pdf](http://lawreview.law.miami.edu/wp-content/uploads/2011/12/v64_i3_akoppel.pdf)> (last accessed January 17, 2013). A GPS receiver can track in real-time or make a record of its location with accuracy up to a few meters. See Fishman & McKenna § 29:35; see also Koppel, supra, at 1063-64 n.32. It is undisputed that GPS is the most accurate way to track location, but even GPS can only track a cellular phone if the phone has GPS features (and those features must also be enabled at the time of the phone’s use). See Fishman & McKenna § 28:2. As a result, cell phones



without GPS, or rather without GPS enabled, can only be tracked through less reliable means, such as cell site information. See Fishman & McKenna § 29:1.

With respect to cell site information, real-time cell site data can be gathered as a cell phone constantly scans the cellular network for the site with the strongest signal. See Fishman & McKenna § 29:38. Law enforcement can interpret the data to try and determine the present location of a cell phone. See In re Application of the United States for an Order Authorizing the Installation and use of Pen Register and a Caller Identification System on Telephone Numbers [Sealed], 402 F.Supp.2d 597, 599 (D.Md. 2005). Alternately, historical cell site data records the information a cellular company keeps on a phone and may show a history of prior location(s). See Fishman & McKenna § 28:2. Law enforcement can use this data to place a suspect at the scene of a crime that has already been committed or track history of previous movement. See Fishman & McKenna § 28:2 (describing the process of triangulation). It is undisputed, however, that the method used for interpreting cell site data will determine its accuracy, and methods other than GPS possess numerous potential flaws. See Fishman & McKenna § 29:35.

Here, while the Government's notice does not specify which method of cell phone tracking will be the subject of Mr. Orellana's testimony, upon information and belief, the Government will rely upon historical cell site data, and it appears that the Government will imply or directly posit that the only factor upon which

utilization of a particular cell phone tower depends is the distance between the cellular phone and the cell phone tower. Such a hypothesis, however, is simply untrue, and we expect that a hearing would establish that not only is location of the cell tower not indicative of the caller's location, but the ability of a cellular phone to "ping" off a cell phone tower in fact depends on a multitude of factors completely independent from distance. Those factors include, but are not limited to:

- the make and the model of the cellular phone
- the wattage output of the cellular phone
- the generation of the phone
- the bandwidth of the cellular phone
- whether the phone call was made inside or outside
- whether the phone call was made in an urban or rural environment
- the topography of the area a cell phone tower is located
- whether the cell tower is located in an urban or rural environment
- the number of antennas on the cell tower
- the height of the antennas on the cell tower
- the location of the antennas on the cell tower
- the direction of the antennas on the cell tower
- the angle of the antennas on the cell tower
- the number of cones on a cell tower
- the height of the cones on the cell tower
- the direction of the cones on the cell tower
- the angle of the cones on the cell tower
- the height of the cellular tower
- how high the cellular tower is above sea level
- the fractional percentage of channel assignments of the cell tower
- the number of cellular phone providers utilizing a tower
- the number of cellular phone providers within a call region
- the performance of maintenance on the cellular towers
- the wattage output of the cellular tower
- the range of the cellular tower
- the weather conditions

The Government's notice does not disclose whether the Government's expert has considered these various factors. Rather, it is anticipated that the Government will have its expert assert an essentially baseless conclusion expecting the Court and the jury to accept the same. While it is anticipated that the Government's expert will acknowledge that all of the factors articulated above could impact the communication of the cellular phone with a particular cellular tower, it is highly unlikely that Mr. Orellana will be able to testify as to the specific effects of these factors in this case, as neither he nor the Government appear to possess all of the requisite information, and to the extent they do, such information has not yet been shared with the defense.

Moreover, we expect that a hearing will reveal that the location of a cell tower does not necessarily correlate with the location of the cell phone user, and as such the reliability of testimony based upon such information would be highly suspect. Further, since a cell tower signal can reach over miles, should the Government allege that a person's location can be determined with any sort of specificity from the location of a single cell tower, or even two towers, such a conclusion would be quickly shown to be unreliable. Indeed, we expect that a hearing will reveal, for example, that there is no scientific data that could establish the potential rate of error for tracking location based upon a single cell tower since tracking one particular signal source is impossible.

Although there is the possibility that cell towers could be used to determine a range of potential locations if a triangulation calculation is done, the Government has not provided notice that triangulation occurred in this case, nor that Mr. Orellana will be relied upon to testify regarding such method. Triangulation requires three cell towers and would still only result in an approximate, not exact, location. Further, when triangulation is not possible, the problem with using historical cell site records from only one or two towers is that such data was “never intended to[,] and do[es] not[,] indicate location of the [cell phone] in relation to any cell site.” Manfred Schenk, *How to Read Cricket Call Detail Records*, CHERRY BIOMETRICS, <available at <http://www.docstoc.com/docs/22231386/How-to-read-Cricket-Call-Detail-Records> > (last accessed January 17, 2013).

At best, cell site data from only one or two cell towers can only narrow location to the geographic coverage area of the originating and terminating cell sites, rather than pinpoint the specific location of the cell phone. See Francis v. Fabian, 669 F.Supp.2d 970, 987, n.5 (D.Minn. 2009); United States v. Benford, Docket No. 09 Cr. 86, 2010 WL 2346305, at \*1 (N.D.Ind. June 8, 2010).

That said, as previously referenced, we expect that a hearing would establish that the only truly accurate way to determine location is through the use of GPS. Unlike cellular phones, GPS operates using satellites. Pursuant to Federal Communication Commission (“FCC”) regulations, cell phones are now required to

contain GPS chips so that emergency responders can accurately locate a caller in distress, a clear sign that the FCC does not consider cell site data to be a sufficient basis to pinpoint location at times of emergency. Indeed, if cell site data was sufficient, there would be no need for the Government to require GPS chips in phones. To that end, we respectfully submit that a methodology that has been determined by independent government agencies to be insufficient to stake a caller's life on should not now be accepted as reliable enough to imperil the defendants' liberty.

#### **IV. The Requirements of Daubert and Rule 702**

The Court is the gatekeeper protecting against the admission of "junk science," both to protect the Constitutional rights of the defendants and to uphold the sanctity of the judicial process itself. Here, we do not mean to suggest that all cell site testimony is necessarily rested upon "junk science", however there are sufficient questions regarding the various different forms of cell site data that a hearing is necessary to ensure that Mr. Orellana's testimony will be based upon reliable information (such as GPS tracking or, in certain circumstances, triangulation) and not merely guesswork derived from the partial data provided by only one or two towers.

Rule 702 of the Federal Rules of Evidence provides:

A witness who is qualified as an expert by knowledge, skill, experience, training, or education may testify in the form of an opinion or otherwise if:

- (a) the expert's scientific, technical, or other specialized knowledge will help the trier of fact to understand the evidence or to determine a fact in issue;
- (b) the testimony is based on sufficient facts or data;
- (c) the testimony is the product of reliable principles and methods; and
- (d) the expert has reliably applied the principles and methods to the facts of the case.

In Daubert v. Merrell Dow Pharmaceuticals, supra, 509 U.S. 579 (1993), the Supreme Court held that Rule 702 of the Federal Rules of Evidence did not incorporate the “general acceptance test” as a basis for assessing the admissibility of scientific expert testimony. Rather, the Daubert standard established specific guidelines for the admission of scientific expert testimony. First, under Rule 702, the task of “gatekeeping”, or assuring that scientific expert testimony truly proceeds from “scientific knowledge”, rests on the trial judge. This requires the trial judge to ensure that the expert's testimony rests “on a reliable foundation”. Daubert, 509 U.S. at 597. Concerns about expert testimony cannot be simply referred to the jury as a question of weight. Moreover, the proponent of the expert testimony bears the burden of establishing the qualification, reliability and helpfulness of the testimony. See United States v. Frazier, 387 F.3d 1244, 1260 (11<sup>th</sup> Cir. 2004).

Moreover, the admissibility of expert testimony is governed by Rule 104(a), not Rule 104(b). Thus, the judge must find it more likely than not that the expert's methods are both reliable and reliably applied to the facts at hand. A conclusion will qualify as scientific knowledge if the proponent can demonstrate that it is the product of sound "scientific methodology" derived from scientific method.

In Daubert the Supreme Court enumerated general factors to help a trial court assess whether scientific reasoning or methodology is valid and properly applied to a case. See Daubert, 509 U.S. at 592-93. These factors include: (1) "whether it can be (and has been) tested"; (2) "whether the theory or technique has been subjected to peer review and publication"; (3) whether there is a "known or potential rate of error" and "standards controlling the techniques operations"; and (4) whether the methodology has received "general acceptance" within the scientific community. See Id. The Supreme Court later extended Daubert beyond scientific reasoning to testimony based on technical or other specialized knowledge. See Kumho Tire Co., Ltd. v. Carmichael, 526 U.S. 137, 147 (1999); see also United States v. Hankey, 203 F.3d 1160, 1167-68 (9<sup>th</sup> Cir. 2000) (noting that there is no longer a distinction under Rule 702 between "scientific" testimony and testimony based on "technical" or "other specialized knowledge").

None of the Daubert factors are dispositive; therefore, a trial court's inquiry will depend on the specific circumstances of each case. See Kumho Tire, 526 U.S.

at 141 (“[T]he test of reliability is ‘flexible,’ and Daubert’s list of specific factors neither necessarily nor exclusively applies to all experts or in every case.”); see also Daubert, 509 U.S. at 593 (“[p]ublication (which is but one element of peer review) is not a *sine qua non* of admissibility; it does not necessarily correlate with reliability”). Similarly, submission to the scrutiny of the scientific community is a component of “good science,” in part because it increases the likelihood that substantive flaws in methodology will be detected. See Daubert, 509 U.S. at 594 (“Widespread acceptance can be an important factor in ruling particular evidence admissible, and ‘a known technique which has been able to attract only minimal support within the community’ ... may be properly viewed with skepticism.”). As such, when conducting Daubert analysis, a court must “focus ... solely on principles and methodology, not on the conclusions that they generate.” See Daubert, 509 U.S. at 595.

Here, the Government’s Rule 16 letter fails to provide sufficient notice of Mr. Orellena’s opinions, and more importantly, the bases and reasons for those opinions. As such, we respectfully submit that the Government’s notice is insufficient to satisfy Fed.R.Crim.P. 16(a)(1)(G). To the extent that such notice can be cured prior to either defendant’s trial, we nonetheless submit that a Daubert hearing is necessary to ensure that this specific expert witness is basing his opinions on scientifically reliable methods and data.



**V. Conclusion**

Wherefore, for the reasons discussed above, Defendants Louis Ruiz (Trial Group V) and Heriberto Martinez (Trial Group III) hereby object to the sufficiency of the Government's notice of its "Cell Site Technology Expert", and in the alternative jointly move for a Daubert hearing.

We once again note that we have spoken to counsel for all other remaining Trial Group III and Trial Group V defendants (defendants Carlos Ortega, David Valle, Yanes Acosta-Yonis, and Franklin Villatoro), and all such defendants join in the instant applications.

Dated: New York, New York  
January 17, 2013

Respectfully submitted,

A handwritten signature in black ink, appearing to read "MBR", with a long horizontal flourish extending to the right.

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